

73rd MORSS CD Cover Page

UNCLASSIFIED DISCLOSURE FORM CD Presentation

712CD

For office use only 41205

21-23 June 2005, at US Military Academy, West Point, NY

Please complete this form 712CD as your cover page to your electronic briefing submission to the MORSS CD. Do not fax to the MORS office.

Author Request (To be completed by applicant) - The following author(s) request authority to disclose the following presentation in the MORSS Final Report, for inclusion on the MORSS CD and/or posting on the MORS web site.

Name of Principal Author and all other author(s): **Thomas A. Dufresne and Robert L. Turner**

Principal Author's Organization and address:

Phone: 703-604-6349

Fax: 703-604-6400

Email: Thomas.Dufresne@osd.mil

Original title on 712 A/B: **Process Documentation and Execution: A Tool for Supporting Assessing Alternatives**

Revised title: Process Documentation and Execution: A Tool Supporting the Assessment of Alternatives

Presented in (input and Bold one): (**WG_17_**, **CG_C_**, Special Session ____, Poster, Demo, or Tutorial):

This presentation is believed to be:
UNCLASSIFIED AND APPROVED FOR PUBLIC RELEASE

Report Documentation Page				Form Approved OMB No. 0704-0188	
Public reporting burden for the collection of information is estimated to average 1 hour per response, including the time for reviewing instructions, searching existing data sources, gathering and maintaining the data needed, and completing and reviewing the collection of information. Send comments regarding this burden estimate or any other aspect of this collection of information, including suggestions for reducing this burden, to Washington Headquarters Services, Directorate for Information Operations and Reports, 1215 Jefferson Davis Highway, Suite 1204, Arlington VA 22202-4302. Respondents should be aware that notwithstanding any other provision of law, no person shall be subject to a penalty for failing to comply with a collection of information if it does not display a currently valid OMB control number.					
1. REPORT DATE 22 JUN 2005		2. REPORT TYPE N/A		3. DATES COVERED -	
4. TITLE AND SUBTITLE Process Documentation and Execution: Introducing A Tool to Support Analysis of Alternatives				5a. CONTRACT NUMBER	
				5b. GRANT NUMBER	
				5c. PROGRAM ELEMENT NUMBER	
6. AUTHOR(S)				5d. PROJECT NUMBER	
				5e. TASK NUMBER	
				5f. WORK UNIT NUMBER	
7. PERFORMING ORGANIZATION NAME(S) AND ADDRESS(ES) US Military Academy West Point, NY				8. PERFORMING ORGANIZATION REPORT NUMBER	
9. SPONSORING/MONITORING AGENCY NAME(S) AND ADDRESS(ES)				10. SPONSOR/MONITOR'S ACRONYM(S)	
				11. SPONSOR/MONITOR'S REPORT NUMBER(S)	
12. DISTRIBUTION/AVAILABILITY STATEMENT Approved for public release, distribution unlimited					
13. SUPPLEMENTARY NOTES See also ADM201946, Military Operations Research Society Symposium (73rd) Held in West Point, NY on 21-23 June 2005 . , The original document contains color images.					
14. ABSTRACT					
15. SUBJECT TERMS					
16. SECURITY CLASSIFICATION OF:			17. LIMITATION OF ABSTRACT UU	18. NUMBER OF PAGES 21	19a. NAME OF RESPONSIBLE PERSON
a. REPORT unclassified	b. ABSTRACT unclassified	c. THIS PAGE unclassified			

Process Documentation and Execution:

Introducing A Tool to Support Analysis of Alternatives

Thomas A. Dufresne and Robert L. Turner

Presented to the Military Operations Society Symposium

CG C Joint Warfare, WG 17 Joint Campaign Analysis

23 June 2005

US Military Academy

West Point, NY

Problem Statement

Develop software tools to support analytical data preparation processes:

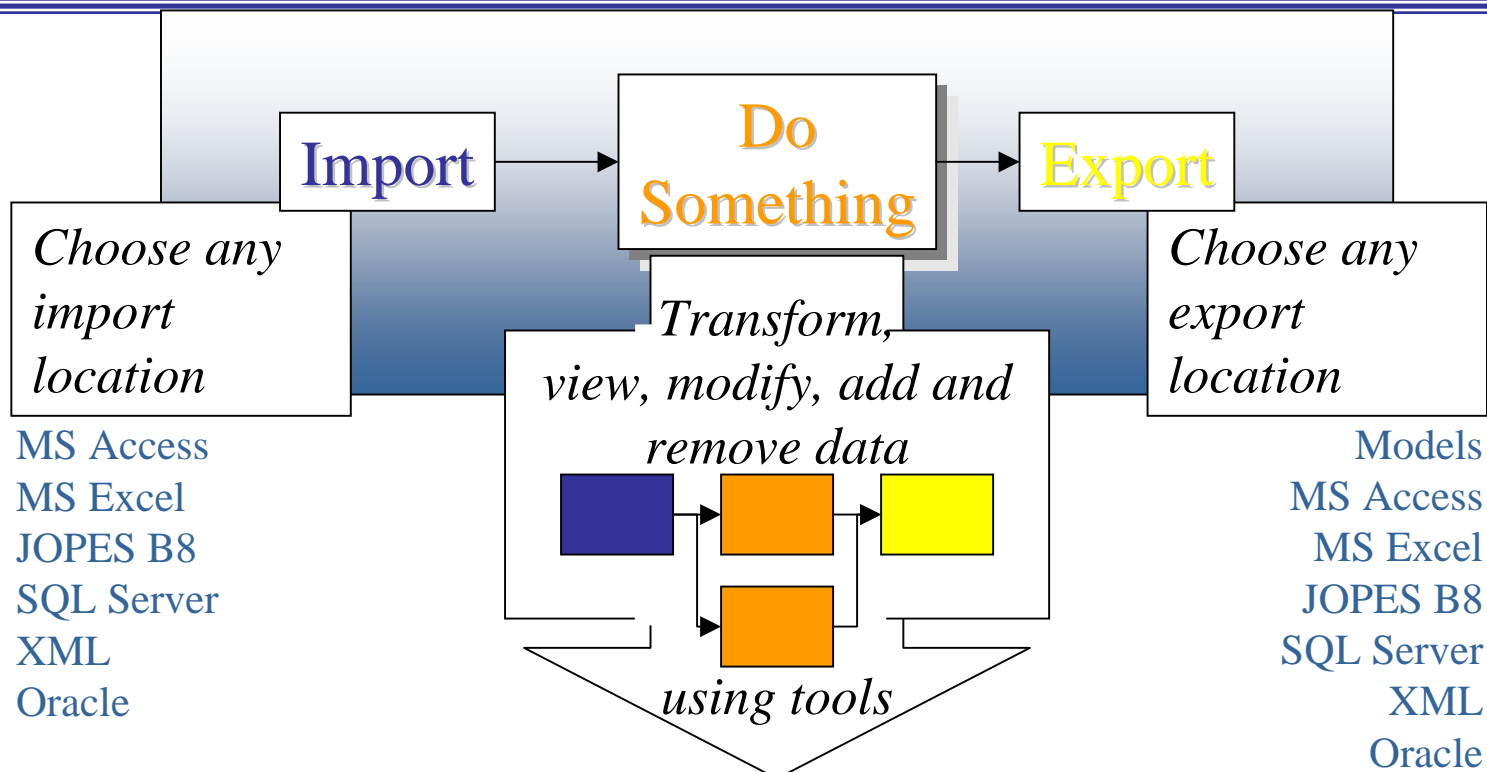
- Populate authoritative databases
- Prepare data for analysis
- Post-process model output

What features would you like to see in these tools?

- Usability
- Reliability
- Flexibility
- Transparency
- Repeatability

Introducing...

Process Execution Tool

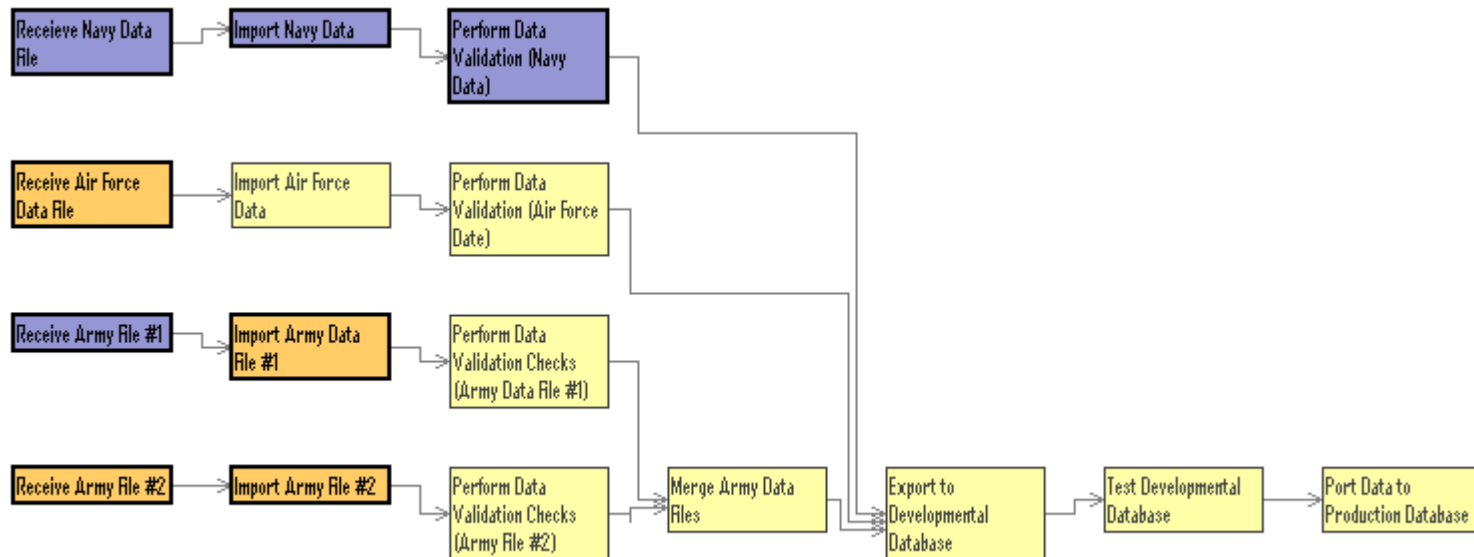


Order Of Battle - Unit - Transform - Surrogation – GeoDataViewer - TPFDD



Process Execution Tool (PET)

- PET is analogous to Microsoft Project.
 - A graphical display of the tasks/steps in a data preparation process.
- PET goes a step further than MS Project by supporting the execution of process steps.
- Process steps are assigned tools (Step Tools), which complete or support the completion of the step.



Step Tools

Step Tools come in three flavors:

- Generic data manipulation tools
 - To import data: **Data Mapper**
 - To filter, merge, modify, and export data: **Transform Tool**
 - To create translation tables: **Surrogation Tool**
- Entity specific data editors
 - To create and edit units: **Unit Tool**
 - To create and edit Orders of Battle: **OOB Tool**
 - To view and edit entity locations: **GeoData Viewer**
 - To view, edit, and convert TPFDs: **TPFD Generator**
- External applications
 - **COTS / GOTS software**
 - **Your own custom built applications**

Process Execution Tool (PET)

PET should be useful for projects or processes with:

- Many complexly sequenced steps (JWARS TFPD)
- Multiple data sources (CFDB)
- Multiple data output formats (JICM)
- Multiple analysts (MCS)
- Extended Duration (Analytical Baseline)
- Changing requirements

Just about everything we do.

PET Functionality

Three Levels of Functionality: Process Administrator, Analyst, Observer

- Administrator Functionality:
 - Create Process - Adding and Sequencing Steps
 - Assign Step Tools
 - Assign Step Validation Rules
 - Designate Automatic Steps
 - Establish Connections to Source Data
 - Define Transformations
 - Assign Analysts to Steps
 - Monitor Execution and Inspect Intermediate Data Products
 - Add / Modify / Delete Steps During Execution
- Analyst Functionality:
 - Inspect Intermediate Data Products and Data Validation Results
 - Work on Assigned Steps
 - Enter Step Execution Comments
- Observer Functionality: Monitor Process

Benefits of Using PET

To Populate Authoritative Databases:

1. Provide visibility into process completion.
2. Automate data consistency checks.
3. Improve process efficiency.
4. Document the process.

Benefits of Using PET

To Post-Process Model Output:

1. Facilitates correlation of output data elements within a run.
2. Facilitates comparison of output data between runs.
3. Provides framework for automating MOE calculation and chart generation.
4. Document the Process

Benefits of Using PET

To Prepare Data for Analysis:

1. Facilitates controlled modifications for analysis of alternatives.
2. Facilitates extending analysis using consistent common data
3. Document the process.

Example Data Preparation Process

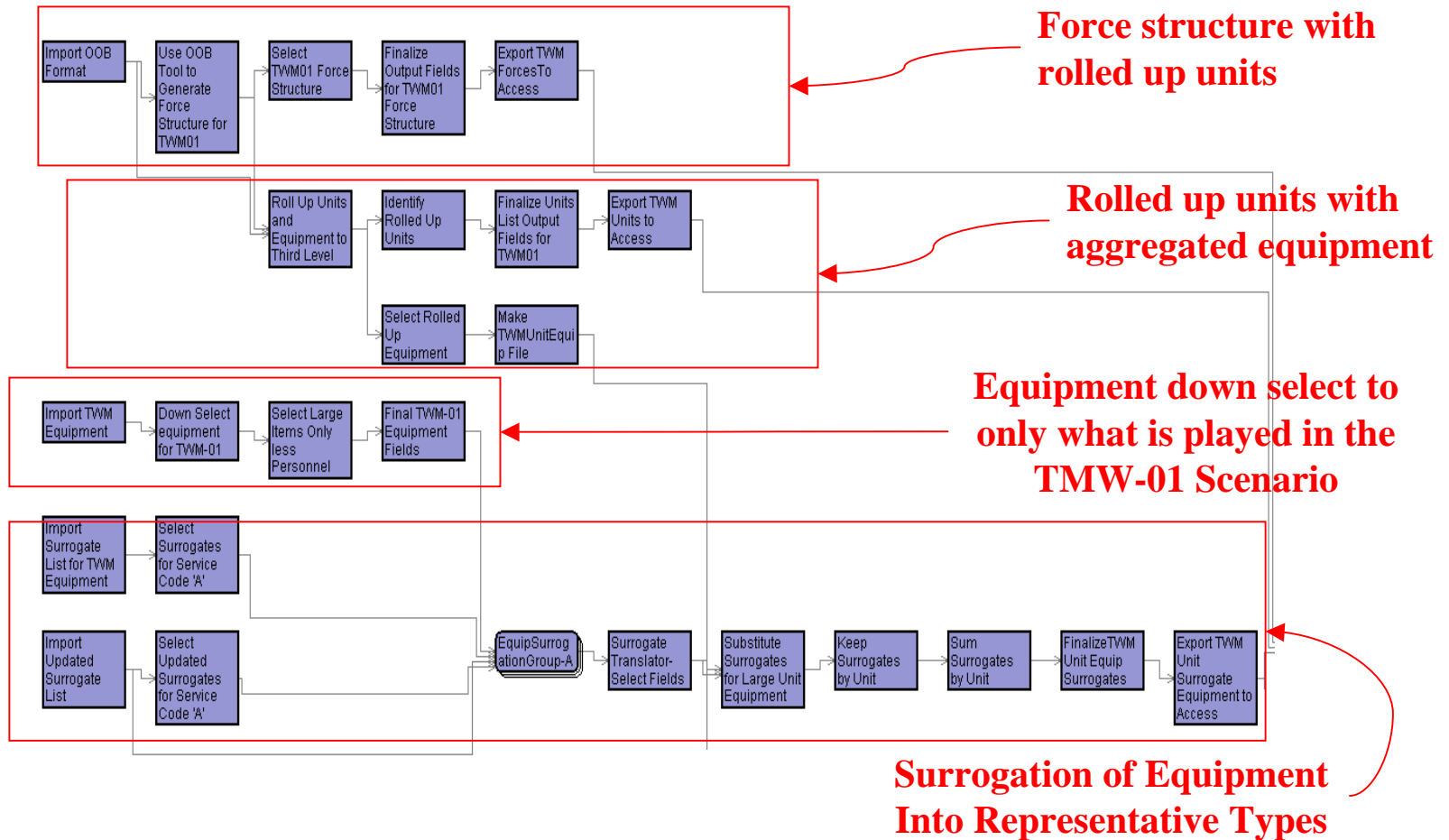
Tidal Wave Mitigation (TWM) A Case Study using the Process Execution Tool

The Case Study and the sample data is available
on the provided CD

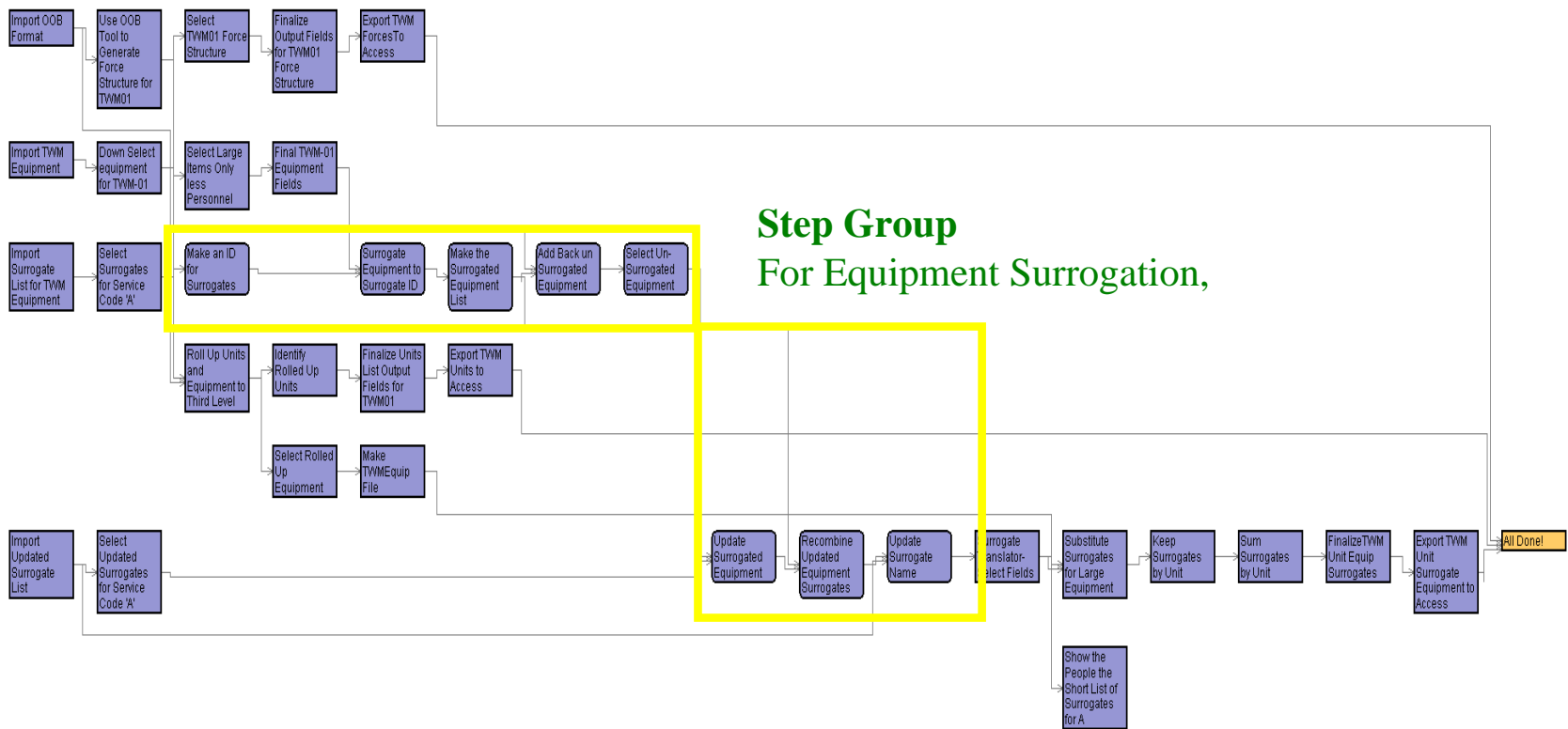
The Case Study ...

- Demonstrates the overall use of PET from data import to data export.
- Demonstrates the benefits of using PET for managing the development of analysis datasets.
- Is based on an entirely fictional and unclassified scenario and unclassified data.
- Consists of a few...

...simple steps...

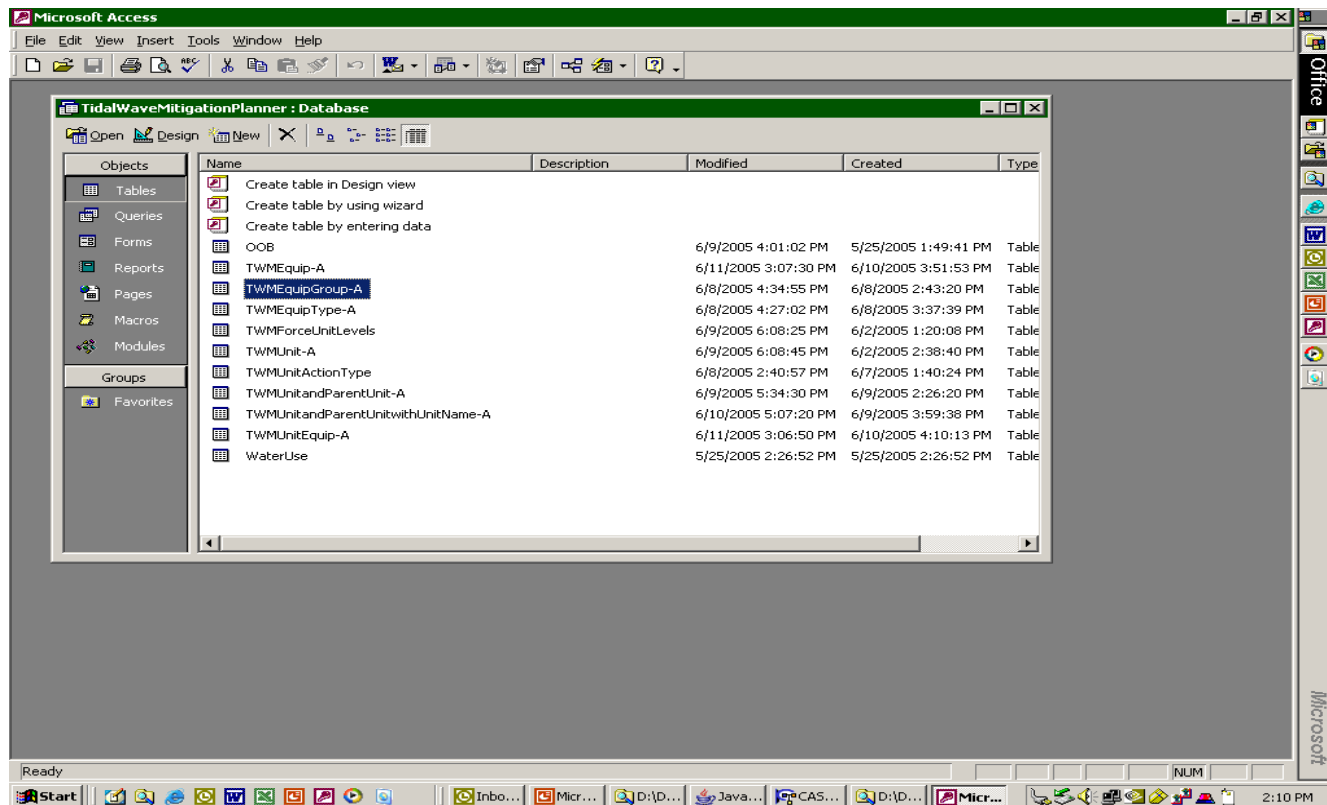


...plus a few more...



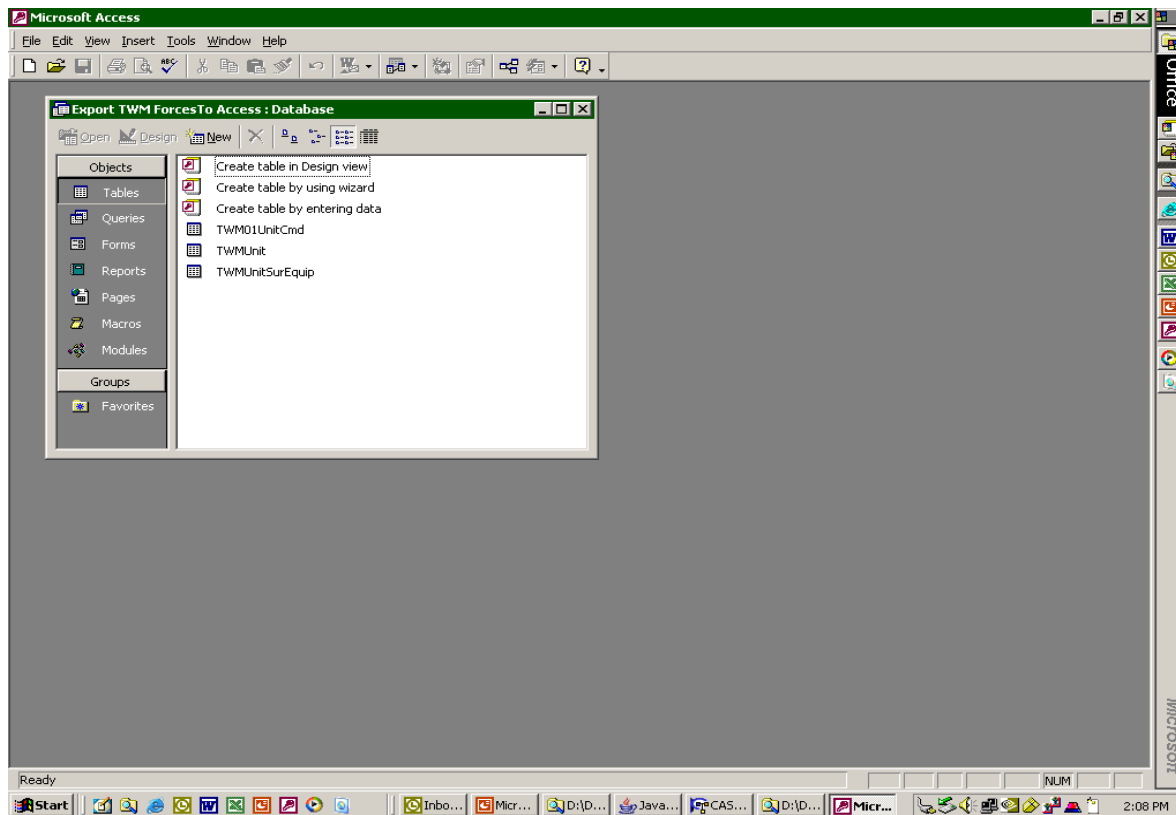
Initial Data

Force List, Tables of Equipment, Equipment Characteristics



Output Data

Playable units and equipment



Case Study “Results”

- Build the process:
 - 1-2 days to build 34 step process.
- Execute the process – build the base case:
 - Less than 2 hours
- Generate excursion data set:
 - Duration depends on the extent and location of changes
 - Assertion – can be done faster and more reliably with PET

Questions?

Updates and Feedback

- SourceShare: <https://sourceshare.pae.osd.mil>
collaborative software development site (registration required)
- Send Comments to:
 - Thomas.Dufresne@osd.mil